

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Atty. Docket

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PHN 16,310A

SERIAL NO.:

GROUP ART UNIT:

FILED: CONCURRENTLY

EXAMINER:

METHOD OF AND ARRANGEMENT FOR RECORDING AND REPRODUCING VIDEO IMAGES

Commissioner for Patents
Washington, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

Prior to calculating the filing fee and examination,
please amend the above-identified application as follows:

IN THE SPECIFICATION

Enclosed herewith is a Substitute Specification.

IN THE CLAIMS

Please cancel claims 1, 2 and 5, amend claims 3 and 4, and
add new claims 6-8 as follows:

3. (Amended) The method as claimed in Claim 6, in which the record carrier is moved at a speed which is higher than a nominal playback speed, and in which, each time, a first predetermined number of consecutive frames is supplied to the output, after which
5 a second predetermined number of consecutive frames are deleted, the second predetermined number being greater than the first predetermined number.

4. (Amended) The method as claimed in Claim 3, in which the first predetermined number of consecutive frames corresponds to an integral number of Groups of Pictures (GOPs), and in which the second predetermined number of consecutive frames corresponds to an
5 integral number of GOPs.

6. A method of reproducing information recorded on a record carrier, the information being a sequence of video frames coded in accordance with an MPEG format and including I frames, P frames and B frames, said method comprising the steps:

5 moving the record carrier with respect to a read head at an adjustable speed;

reading the information recorded on the record carrier with a speed which differs from a nominal playback speed, whereby said video frames of the sequence are supplied at a rate (number of

10 frames per unit of time) differing from a nominal rate; and
processing the information being read, and selectively
supplying frames in the information being read to an output,
wherein said processing step comprises the sub-steps:
monitoring the frames in the information from the read
15 head, and comparing a number of frames per unit of time in the read
information with a predetermined nominal average;
supplying the I frames of the read information to the
output and, to ensure that the average number of frames supplied to
the output per time unit is substantially equal to said
20 predetermined nominal average, supplying at least one P frame of
the read information to the output.

7. The method as claimed in claim 6, wherein said processing
step further comprises the sub-step:

supplying at least one B frame of the read information to
the output to ensure that the average number of frames supplied to
5 the output per time unit is substantially equal to said
predetermined nominal average.

8. The method as claimed in claim 7, wherein said processing
step further comprises the sub-step:

supplying at least one B frame of the read information to
the output repetitively to ensure that the average number of frames

- 5 supplied to the output per time unit is substantially equal to said predetermined nominal average.

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REMARKS

Enclosed herewith is a Substitute Specification in which the specification as filed has been amended in various places to correct typographical and grammatical errors, and also to add section headings.

In support of the above, enclosed herewith is a copy of the specification as filed marked up accordingly.

The undersigned asserts that no new matter has been incorporated into the Substitute Specification.

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claims 1, 2 and 5 have been cancelled, while new claims 6-8 present a method of reproducing information. Claims 3 and 4 have been amended to now depend from claim 6, and have been amended for clarity.

In the parent application, the Examiner had rejected claims 1-4 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,282,049 to Hatakenaka et al., in that Hatakenaka et al. disclosed dropping all of the B and P pictures which would anticipate the skipping of one or more B pictures.

The Hatakenaka et al. patent discloses moving-picture data digital recording and reproducing apparatuses in which data is recorded in a particular manner for normal and high speed reproduction. In particular, as noted at col. 7, lines 9-28, slices

of data for I-pictures are distributed to each frame on the tape, while data of P- and B-pictures is recorded in the remaining part of the tape on which I-picture data have been recorded. In normal speed reproduction (see col. 7, lines 40-51), the I-, P- and B-picture data are converted to the original sequence, decoded and then supplied to the output. However, in high-speed reproduction (col. 7, lines 52-59), the Hatakenaka et al. apparatus apparently only picks out the appropriate slices of I-pictures from the input data, the particular slices of I-pictures being dependent on the reproduction speed (see col. 7, lines 60-64).

The subject invention is able to perform high-speed and slow-speed (as well as normal speed) reproduction of, for example, an MPEG-encoded video signal which has been recorded for reproduction at only the normal speed. To this end, the subject invention reproduces the recorded video signal at a speed differing from the normal reproduction speed, thereby supplying a sequence of frames at a frame rate differing from the frame rate for the normal reproduction speed. The subject invention then detects the reproduced I-, P- and B-pictures, and then skips (or deletes) one or more of the B-pictures when the reproduction speed is faster than the normal reproduction speed (or alternatively repeats one or more of the B-pictures when the reproduction speed is slower than the normal reproduction speed) such that the resulting frame rate

is at the frame rate for the normal reproduction speed. The resulting video signal is then supplied to a display device.

Applicant submits that the Hatakenaka et al. apparatus skips all of the P- and B-pictures when reproduction is performed at a speed higher than the normal reproduction speed, and then only reproduces some of the slices of the I-pictures. Applicant submits that Hatakenaka et al. neither shows nor suggests determining the frame rate of the information being read, and then skipping one or more B-pictures (or repeating one or more B-pictures) such that the frame rate of the resulting video signal is at the frame rate for the normal reproduction speed.

In the present case, Applicant submits that Hatakenaka et al. neither shows nor suggests skipping (or repeating) one or more B-pictures such that a resultant frame rate is the same as the frame rate for a normal reproduction speed. Rather, Hatakenaka et al. discloses dropping all of the B- and P-pictures, and then reproducing a number of the slices of the I-pictures depending on the reproduction speed.

Further, Applicant submits that Hatakenaka et al. neither shows nor suggests a method of reproduction at a speed less than that of the normal reproduction speed, as is supported by the claims of the subject invention.

Applicant believes that this application, containing claims 3, 4 and 6-8, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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APPENDIX

3. (Amended) A ~~The~~ method as claimed in Claim 16, in which the
record carrier is played with~~moved at~~ a speed which is higher than
the ~~a~~ nominal playback speed, and in which, each time, a first
predetermined number of consecutive frames is ~~transmitted to a~~
5 ~~display apparatus~~supplied to the output, after which a second
predetermined number of consecutive frames ~~is skipped~~are deleted,
the second predetermined number being greater than the first
predetermined number.

4. (Amended) A ~~The~~ method as claimed in Claim 3, in which the
first predetermined number of consecutive frames corresponds to an
integral number of Groups of Pictures (GOPs), and in which the
second predetermined number of consecutive frames corresponds to an
5 integral number of GOPs.